

# Willard Spur Resolution: Potential WQS Modifications

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## Background

- The permit for the Perry-Willard discharge was challenged by entities
- DWQ response to the petitions:
  - Modify the permit to reflect 3b uses (the designated use within the refuge)
  - Convene a Science Panel and Steering Committee
- The Science panel was asked to address two questions:
  - What are the potential impacts of the Perry-Willard discharge?
  - What is needed to ensure the long-term protection of the Willard Spur ecosystem?

## Important Conclusions: Discharge Risk

- The risk of the discharge to the ecosystem is low, particularly in the context of other stressors:
  - The spur connects to Bear River each year, which seems to prevent accumulation of nutrients in sediment or the water column
  - Productivity and nutrient uptake is high, which means that any impacts that might occur would be localized and therefore easy to monitor

## Important Conclusions: Ecological

- There are at least two main hydrologic periods that seem to dictate many of the physical, chemical and biological characteristics of the ecosystem: the connected “clear water” phase and the “green water” phase that occurs once the Spur is cut off from Bear River Bay.
  - 3b numeric criteria are generally met, except criteria for several conventional parameters that are exceeded during the “green water” phase, especially: DO, temperature and pH (ammonia too, but rare and at extremes)
- There are several warm water fish that are present within the Spur (provided that it isn’t dry) including natives and game species:
  - All fish spp. are tolerant of low DO and temperature
  - Given the ephemeral nature of the Spur, it is unlikely that reproduction is an important component of this use
- If we change the standards to reflect the existing use, we’ll need to address the “natural” violations that occur during the “green phase”, either with a UAA or with site-specific standards
  - In either case, we need to demonstrate that the existing uses will be protected

- But, existing uses may have changed due to hydrologic conditions associated with the flooding in the 1980s
- The current studies were entirely conducted during lower GSL elevations, saline conditions created by higher elevations may ultimately need to be addressed depending on how modifications to standards are approached

## Standards Considerations

### Numeric Criteria

Most options would require that we address DO, temperature and pH WAS violations during the “green water” phase. Several options for addressing this include:

### Standards

- Footnote exclusions (i.e., impounded wetlands)
  - Already getting messy, many stakeholders get confused
- Create site-specific and seasonal numeric criteria (not preferred alternative)
  - Taken out of context, the numbers may seem extremely liberal:
    - Precedence
    - EPA and stakeholder buy-in or pretty extreme conditions
    - May not have sufficient data on those spp. that are present within the Spur or similarly tolerant related spp.
- Could also address via a UAA and change of uses Designated Uses of the Willard Spur ecosystem

### Option 1: Do Nothing

#### *Rationale*

- Permit already uses 3B criteria, so changes to uses are not immediately needed

#### *Advantages*

- Easiest among all alternatives
- Does not require additional delineation of Great Salt Lake

#### *Disadvantages*

- Does nothing to solve the political vs. ecological boundary problems that led to many of the permit challenges
- Does not really fulfill our obligation to ensure long-term protections for the Spur
- Does not capture the information gleaned from these investigations in rule
- We’d still need to address the DO, pH and temperature issues for waters within Spur boundaries

### Option 2: Reclassify all of Willard Spur as 3B/3D

#### *Approach/Rationale*

- Existing uses do include warm water fish and some game species, but all species are tolerant of high pH and low DO

### ***Advantages***

- Most conventional approach:
  - Consistent with existing permit decisions
- Addresses issues of political vs. ecological boundaries, but only for this specific circumstance
- Relatively easy in terms of standards changes and rulemaking

### ***Disadvantages***

- Further reinforces problems associated with broad & generic aquatic life uses classes
- Does not broadly move the wetland program forward
- Does not capture the information gleaned from the WS investigations (at least in rule)
- Compared to Option 3, the site-specific standards for conventional parameters (e.g., pH, DO) may be more difficult to justify:
  - Toxicity data of resident biota may not be available
  - Precedent Concerns: Numbers may appear unreasonably liberal to EPA and stakeholders

## **Option 3: Create a New Wetland Use Category and Site-Specific Narratives for the Spur (currently the preferred alternative)**

### ***Approach***

- Create or modify (GSL subclass) aquatic life uses categories for Willard Spur
- Apply all toxic criteria and then replace the conventional parameters with biological endpoints
- Create a site-specific narrative for Willard Spur that describes key attributes of chemical, physical and biological integrity (narrative or numeric descriptors of biological endpoints) that need to be met for the use to be supportive
- Structure a monitoring and assessment program around measures of key indicators of these goals

### ***Advantages***

- Creates a logical framework for further water body wetland classifications, which is consistent with our stated objectives for this program
  - The site-specific narrative concept may provide a framework for addressing other permanently modified waters through descriptions of best attainable conditions as narratives
- Captures the knowledge gleaned from our investigations to meet our obligation to “Ensure the long-term protection of Willard Spur”
  - Ultimately could include specific statements/numeric indicators of “best attainable conditions” (see Monitoring and Assessment below)
- The rationale for addressing conventional pollutants is more logical

- The argument that wetlands with warm water fish are fundamentally different from 3B waters is logical and defensible
- Provides a framework for wetland-specific numeric criteria as they are developed for Willard Spur and then potentially other wetlands

***Disadvantages***

- Least conventional and therefore most complex rulemaking alternative
  - Implications for other programs would need to be considered
  - EPA approval process may be more lengthy and difficult
- Others?